

**MEDIA CONTACT:**

Keith Arterburn, 208-526-4845, [Send E-mail](#)

## **INL, NorthStar Nuclear Medicine, Inc. sign agreements on cancer technology**

NorthStar Nuclear Medicine, Inc. and the U.S. Department of Energy's Idaho National Laboratory have signed two agreements on a major new technology to produce the extremely valuable medical isotope, actinium-225, for use in cancer research and treatment. The agreements open the door to another source of a medical isotope that can be used in a cancer treatment regimen that offers many advantages over traditional treatment approaches.

A patented invention that has been nominated for R&D magazine's top 100 technologies during 2006, the Medical Actinium for Therapeutic Treatment (called MATT) involves separations processes that recover actinium-225 from unused nuclear fuel. This technology is expected to increase the world production of the medical isotope, enabling important clinical cancer treatment trials to proceed.

Actinium-225 can be used effectively in alpha-immunotherapy treatments, which combine an alpha particle-emitting radionuclide that is carried by a targeting agent such as monoclonal antibodies. The targeting agent seeks out and selectively attaches to cancer cells. The radioisotope then kills the targeted cancer cells, while minimizing collateral damage to surrounding normal cells. This treatment regimen offers many key advantages over external radiation exposure and chemotherapy.

"This contribution to medical isotope production demonstrates the breadth of research by INL scientists, while underscoring our dedication to the peaceful uses of nuclear materials," said Jim Lake, INL Associate Laboratory Director for Nuclear Programs.

The agreements between INL and NorthStar include a license for the company to use the MATT technology, and a cooperative research and development agreement (CRADA) supporting further development of the technology. The license authorizes NorthStar the exclusive right to use the technology for the life of the patents in exchange for fees and annual royalty payments to the laboratory. The CRADA is an agreement under which NorthStar provides INL funding to develop MATT during the initial planning stage for designing and building a pilot plant to recover the medical isotope.

"We are pleased with the partnership that has developed between NorthStar and Idaho National Laboratory in bringing valuable radioisotopes to medical professionals and patients in the battle against cancer," said NorthStar's President and CEO George Messina. "This agreement and partnership is a major step in achieving our goal of enabling the future of nuclear medicine."

The Department of Energy is currently providing actinium-225 to researchers from its Oak Ridge National Laboratory in Tennessee. If INL and NorthStar are successful in further developing their technology, it would supplement this limited supply.

The INL team of inventors included David H. Meikrantz, Terry A. Todd, Troy J. Tranter, Leroy Lewis, and Joseph Henscheid, along with PG Research Foundation Director, E. Philip Horwitz. "It is very gratifying to know that the research we did together may well help others conquer cancer and save lives," said Todd.

In inventing this technology, INL researchers took advantage of the fact the INL has significant sources of actinium-225 in the 14 metric tons of 30-year old unused nuclear fuel. This fuel was originally created to use in a breeder reactor, a research program that was discontinued in the early 1970s.

More information about this technology is provided in two videos, which can viewed at <http://www.inl.gov/featurestories/2006-03-02.shtml>. More information on NorthStar Nuclear Medicine, Inc is available at <http://www.northstarmm.com/> and Idaho National Laboratory at <http://www.inl.gov/>.

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